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1. A cable modem having a programmable media access controller, comprising:

- a system bus;
- a plurality of processors, each of the plurality of processors is communicatively coupled to the system bus, that perform a plurality of processing functions, the plurality of processing functions are partitioned, at least in part, between at least two of the plurality of processors;
- a peripheral bus that is operable to perform transfer of cable media;
- a bridge that communicatively couples the system bus and the peripheral bus; and
- a peripheral processing device, communicatively coupled to the peripheral bus, that is operable to perform processing of a selectively off-loaded portion of the cable media.

2. The cable modem of claim 1, wherein one of the plurality of processors supports upstream data transfer of cable media received by the cable modem; and

at least one other of the plurality of processors supports downstream data transfer of the cable media transmitted by the cable modem.

3. The cable modem of claim 1, wherein one of the plurality of processors is operable to perform at least one of message processing and scheduling.

4. The cable modem of claim 1, wherein the bridge comprises a direct memory access controller that is operable selectively to provide a portion of the cable media to one of the

3 plurality of processors and to provide the off-loaded portion of the cable media to the peripheral
4 processing device.

1 5. The cable modem of claim 1, further comprising at least one additional peripheral
2 processing device, communicatively coupled to the peripheral bus, that is operable to perform
3 processing of at least one additional selectively off-loaded portion of the cable media.

1 6. The cable modem of claim 1, wherein the plurality of processing functions
2 comprises operating system functionality.

1 7. The cable modem of claim 1, wherein the plurality of processing functions
2 comprises media access control functionality.

1 8. The cable modem of claim 1, wherein one of the plurality of processors employs
2 embedded code to support media access control functionality.

1 9. A cable modem device, comprising:
2 a bifurcated bus structure comprising a first bus and a second bus;
3 a partitioned processor structure, communicatively coupled to the first bus, comprising a
4 plurality of processors, that is operable to perform a plurality of processing functions;
5 a co-processor, communicatively coupled to the second bus, that is operable to support
6 processing of cable media that is selectively off-loaded from at least one of the plurality of
7 processors;

an input/output interface, communicatively coupled to the second bus, that is operable to perform data transfer of a plurality of data to the second bus; and

a direct memory access controller that communicatively couples the first bus and the second bus and that is operable to support off-loading of at least one function of the plurality of functions to the co-processor.

10. The cable modem device of claim 9, further comprising at least one additional co-processor, communicatively coupled to the second bus, that is also operable to support processing of cable media that is selectively off-loaded from at least one of the plurality of processors.

11. The cable modem device of claim 9, wherein the first bus employs an Advanced System Bus protocol; and
the second bus employs an Advanced Peripheral Bus protocol.

12. The cable modem device of claim 9, wherein one of the plurality of processors supports upstream data transfer of cable media received by the cable modem; and
at least one other of the plurality of processors supports downstream data transfer of the cable media transmitted by the cable modem.

13. The cable modem device of claim 9, wherein the co-processor is operable to perform at least one of DES encryption and DES decryption.

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